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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,530	10/23/2001	Max Wiki	H60-103 US	3920
21706	7590	09/08/2004	EXAMINER	
NOTARO AND MICHALOS 100 DUTCH HILL ROAD SUITE 110 ORANGEBURG, NY 10962-2100			ASSAF, FAYEZ G	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/047,530

Applicant(s)

WIKI ET AL.

Examiner

Fayez G. Assaf

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 24-84 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24,28,30,32-34,38-40,44-50,53,76,79,81,83 and 84 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/13/2002</u> . | 6) <input type="checkbox"/> Other: _____  |

Continuation of Disposition of Claims: Claims withdrawn from consideration are 25-27,29,31,35-37,41-43,51,52,54-75,77,78,80 and 82.

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**DETAILED ACTION**

***Election/Restrictions***

Applicant's election with traverse of Species 1: Figure 2: claims 24 (generic), 28, 30, 32-34, 38-40, 44-50, 53, 76, 79, 81 and 84 in the reply filed on 6/25/2004 is acknowledged. The traversal is on the ground(s) that the Figures only constitute two related species. Applicant's remarks and constructive election of Species 1 (see page 2 of the response) has been noted and found persuasive.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 24, 28, 30, 38-40, 46-50, 53, 76 and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by Grann E B et al. (prior art submitted by Applicant).

Regarding claim 24 and 28, Grann discloses a light coupling element having a surface (see Fig. 2) of a material which is

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transparent to light of a selected wavelength (page 1 of the article, second paragraph), the element comprising: a first set of equidistantly parallel linear indentations (see Fig. 1) on at least one region of the surface; and a further set of equidistantly parallel linear indentations on the surface which intersect the first set of indentations (see Fig. 2).

Regarding claim 30, Grann discloses the sets of indentations being linear and intersecting at right angles and the distances ( $d_{sub 0}$ ) of successive equidistantly parallel indentations are equal (see Fig. 4).

Regarding claims 38-40, Grann discloses the distances ( $d_{sub 0}$ ) of successive equidistantly parallel indentations relative to the selected wavelength being between  $0.1 \lambda$  to  $10 \lambda$  (note the ratio of the grating to the wavelength).

Regarding claims 46-48, Grann discloses the depth of the indentations relative to the selected wavelength being selected to be between  $0.001 \lambda$  to  $10 \lambda$  (see Fig. 12).

Regarding claims 49 and 50, Grann discloses the duty cycle, defined as the ratio of elevation width to the distance of successive indentations, being between 0.2 to 0.8 (see Fig. 12 or 13).

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Regarding claim 53, Grann discloses the surface being the surface of a layer system with at least one layer which is applied onto a support (see Fig. 1).

Regarding claim 76, Grann discloses the elevations between the equidistantly parallel indentations in top view being square (see Fig. 2).

Regarding claim 83, Grann discloses the method for realizing polarization independence by means of which a light coupling element with a surface grating acts onto incident light of selected wavelength, comprising: developing the surface grating to be two-dimensionally on the surface such that orthogonal polarization vector components are influenced equally by the grating (see description of the symmetric two-dimensional subwavelength gratings on page 2698).

Claim 84 is rejected under 35 U.S.C. 102(b) as being anticipated by Dettre et al. (US 3,354,022).

Dettre discloses a method for reducing a drop size on a light coupling element with surface grating (line 50 to line 53 of Col. 3), comprising: providing a surface grating extending in two dimensions (see Fig. 5) so that the drop size developing thereon is reduced.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 32-34, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grann E. B. et al.

Grann discloses the claimed invention except for the explicit actual values of the distances ( $d_{sub 0}$ ) of the successive equidistantly parallel indentations or the depth  $d_T$  of said indentations.

However, the determination of particular wavelength(s) at which the device is operable can be characterized as routine experimentation related to the intended use.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide such values of  $d_0$  or  $d_T$ , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to provide such values for the purpose of utilizing the grating

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over wide range of wavelengths in devices employing UV or IR sources of light.

In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 79 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grann in view of Official Notice.

Grann discloses the claimed invention except for employing the light coupling element in optical analysis platform or in telecommunication data transmission apparatus.

However, the utility of subwavelength gratings are well known in such devices.

It would have been obvious, at the time the invention was made, to a person having ordinary skill in the art to utilize the gratings of Grann in optical analysis platform or telecommunication data transmission apparatus devices because of the gratings uniaxial/biaxial desired properties and the ability to localize a droplet of liquid on its surface.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fayez G.



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Assaf whose telephone number is (571) 272-2307. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Fayez G. Assaf  
Examiner  
Art Unit 2872

FA  
9/5/04